Site Visit 0305N - 29May03 Daily Report
Site: Nauru
Dates on site: 19May thru 30May

Team:
- Rex Pearson
- John Glowacki

Weather: Fine 30.9 degrees, 66%humidity, wind 4k gusting to 6 knots at 250 degrees, no rain

Present at site: Pearson, Glowacki, Nic, Franklin & Chris

Urgent needs: NIL

General: DS R1 problem sorted out. Construction of MMCR Antenna crate. Cal Kit inventory. D-Van UPS diagnostics.

Nauru tasks:

1. SDS repair (replace drive array chassis, liase with Ron (etc) to rebuild system)
   19May03
   Locate components
   21May03
   Contacted Ron re the installation of the raid controller chassis and DRAC cards.
   Raid controller chassis was installed ok and the DRAC cards were installed into NFS and collector.
   On bootup NFS had lost is BIOS settings, these were reset and NFS booted up ok.
   On bootup of collector the same thing had occurred - the BIOS settings had been lost.
   On investigation - the backup battery in the server was only .13 volt whereas it should be abt 3-3.2 volts.
   We were able to find some of the batteries in Nauru (CR2032 button cells) and replaced the collector battery.
   The NFS was then shutdown and the battery checked and it was also low. This was also replaced and NFS reinstalled.
   The data system was rebooted and all appears to have come up correctly, except the DRAC cards can not be remotely accessed. This will be investigated tomorrow.

   The fault that occurred in Manus with the servers loosing their configuration is the same as what has happened in Nauru - the

batteries will need to be checked and changed in Manus as part of the system re-install.

These batteries normally last 3-5 years so neither Ron or myself are sure why they have failed so early - this may be worth checking with Dell to see if this is a known problem.

Note: Raid chassis installed is WD33235
Raid chassis removed is WD33239 will be returned to SGP

22May03
During the setup of the system overnite a problem was detected in the NFS server. This was rebuilt and relevant software is being loaded to return the system to normal.
R1 cannot access the DSView page, this will be checked tomorrow morning.
23May03
Data system working
29May03
R1 problem sorted out, we needed to upgrade Netscape to a later version (V7) to handle the new software. The DSView page was set as the home page and the observers advised it was working again.

2. SDS – install "Remote Access Card."
   19May03
   Locate components
   21May03
   DRAC cards installed in NFS and collector but unable to remotely access them – will investigate tomorrow with Ron.
   22May03
   Unable to access DRAC cards – software being transferred to Nauru to check them out locally.
   23May03
   Unable to access DRAC cards locally also – Ron is to investigate, it is not anticipated that any further work will be done on this item this visit as it may require software updates to program the DRAC cards. It appears they have lost the password information.

3. MMCR – install repaired TWTA(test system operation/calibration, test SDS collection of data)
   19May03
   Commenced replacement of waveguide components on MMCR antenna. The feed horn assembly is also damaged and badly salt corroded. Troy is getting the Darwin one and express freighting it to Nauru.

20May03
Further work on the MMCR waveguide revealed damage to the feed horn assembly – photo available
We have decided to wait to talk to Kevin re this as it will effect the focal point of the feed.
23May03
Missed Kevin today have sent email suggesting contact time tomorrow morning
24May03
Spoke to Kevin this morning and sent photos of the damaged antenna section. Kevin is discussing with others but we will most likely have to remove the whole antenna and return to the US for maintenance and calibration. Kevin will advise early next week.
26May03
Maintenance checks on MMCR (fans etc) completed
Fan changed in Mux – No spare fans left on site
Brand: Papst Model: 412 12 volt
Preparing to remove MMCR antenna from roof of I van
27May03
MMCR dish removed from the roof of I Van and stored in annex ready for crating up
28May03
Commenced construction of crate for the antenna – materials purchased (wood, nail etc)
29May03
Construction continued – Monty given details of box size for shipping

4. TSI – install repaired instrument(Check network and replace network cable, polish dome and case for rust prevention, align mirror shading).
19May03
TSI installed, network settings configured and placed into operation, fine tuning on the alignment will be checked over the next few days.
Network cable replaced and unit was waxed. Connection box (power and fiber) sealed against vermin access.
Media converters changed to 100BaseT units to match network configuration (this was necessary due to faulty 10Base unit in system but no 10Base spares.) We sent over 2 100Base units with the TSI as a precaution.
TSI operational at 0300Z
21May03
TSI serial number is 107, instrument replacement form is on twppo ftp site under /Reset/SV0305N
Heater operation checked

5. AERI – repair alarm high temp alarm, replace temp probe/wiring connections/cables, check time sync.
   20May03
   AERI computer temperature monitor repaired, current reading 290.8K
   Motor drive unit replaced.
   Blower belt replaced.
   Mirror checked and cleaned
   Time sync checked, current time is correct.
   Fine particle filter replaced – no further spares on site
   Checked operation of hatch controller – had to enable the hatch on the computer then all worked ok – checked operation with water on sensor
   Serial numbers of equipment were requested – see list below :
   AERI taken off line 0130z and restored to service 0345z

   Filter details :
   Fine particle filter replaced – no further spares on site
   ALFCO div of AirMaze corp – 805 684 7651 model – 9FNEM-E-060603-0 part number 9703013

Equipment	Model	Serial
Rack Case	Aeri-08	TWP-C/4311
Black Body temp controller	43000317	03
Stirling cooler controller	43000143	06
Signal conditioning box	7105A	1460
Computer monitor	NEC 254	E782481
Compumotor	SX6	96080600007
Inferometer	R100	433G1
Tape drive	PDS4	DFLKD00094
GPS receiver	n/a	R03N05
GPS antenna	Matsushita	A000557

6. MWR config file update after replacing new heater unit with old one – ship new one to SGP.
   22May03
   Commenced maintenance 2230Z 21May03
   Replaced Teflon window. Removed and reinstalled heater fan assembly. Spare heater assembly on site was unserviceable and returned to the US for repair. Existing unit was reinstalled on the MWR.
   Levels checked and were ok
   Unit returned to service 0130z 22May03

7. CPCC Dimension4 Observer time syncro procedure/training

8. VSAT - Check and adjust settings.
   19May03

Confirmed the stby unit has been programmed with the same settings as in the operational unit. Awaiting info from G2 is they want to change any Nauru settings, Nauru system is functioning better than Manus in terms of error rate and dropouts.
20May03
Based on information received Nauru unit is functioning correctly no further action required.
General check of antenna fittings completed

9. I/O Block: replace faulty analogue I/O block I-Van UPS battery voltage (Monty has ordered replacement and it arrived at Nauru).
   25May03
   Checked power connections on block, cleaned out gekko droppings and placed fly wire screens over 2 holes in case where modules are located. Unable to make module fail again.

10. Barometer - check serial numbers in SMET Loggers.
    19May03
    Smet logger logger Sno 300 WD24828 Baro 505303
    Spare Smet logger Sno 023 WD25949 Baro P0B30005

11. ORG – diagnose offset problem(ask Troy/Porch is this a problem?).
    19May03
    No offset on the ORG detectable, I think this related to a one off event that was seen several months ago – Michael Ritsche also confirmed these thoughts, this was his statement from the 8May.
    "So, the ORG at Nauru appears to be operating properly."

12. Instrument cables – check as and replace if necessary Cat5 connectors in the vans.
    21May03
    Checked D Van cables Cat5 cables – all ok
    Checked I Van cables Cat5 cables – all ok
    24May03
    Checked E Van cables Cat5 cables – all ok

13. Outfitter SAT – install call restriction (test at Darwin first) – are we really ready to do this??

14. APC UPS – test for graceful shutdown of Data system
    24May03
    Spoke to Ron re this item – software needs to be loaded onto the computers to enable this function

15. Maintenance activities (as per Apple spreadsheet).
    19May03

Commenced activities as per spreadsheets.
24May03
Took down the I-van to replace the fans in the Clary UPS. This was from 2300z on 24May03 to 0010z on 25May03. Instruments affected : MPL, Ceilometer, MWR, WSI, and TSI.

16. Water tanks – coordinate set up of water catchment
    21May03
    Completed installation of gutter on the hydrogen van roof and piped into tank.
    Completed installation of gutter on toilet roof and piped into tank.
    22May03
    Installed main valve in tank and tap assemblies
    23May03
    Completed guttering on main roof and working on feed to tank
    26May03
    Completed concrete pad for second water tank
    27May03
    Moved tank onto pad and installed water collection pipes into the tank
    All we need now is rain…

17. Cal Kit - inventory Cal Kit (cables, wind direction tool, 4 ventilators) and put cal items in kit and lock it.
    29May03
    Checked cal leads on site, voltage source etc.
    We will require ventilators (2) for the calibration trip and some additional leads. I emailed Bill porch re this issue, as the loggers will be changed out and most likely different connectors used is it worth making up the extra leads or hand carry them from the Darwin stock.

18. D-Van UPS diagnostics.
    25May03
    Commenced checking both I and D van Clary UPS's looking for any possible causes of the intermittent failures
    27May03
    Continued checks
    29May03
    No apparent causes found – earth resistance, power wiring etc all measure ok

19. Inventory, inspect Fire Extinguishers – one per transportainer and one outside
    24May03
    Fire extinguisher on outside of the AERI van is low on gas and rusted – will be removed.

Fire extinguishers in the Y and Z vans are rusting on their bottom welds and the Z van holder is rusted – may not be operable at some future date (due to rusted bracket.
On the genset the CO2 generator is ok but the other extinguisher is a halon unit and may need to be replaced to meet standards.

Recommendation :
2 replacement units for Y and Z van and new mounting brackets for Z van
1 replacement unit and bracket for the AERI, to be mounted in the AERI van.

20. Check Cimel operation
    19May03
    Battery terminals had corrosion on them – cleaned by Franklin and sealed. General operation checked

21. Replace USB serial converter on AWS Met console
    19May03
    USB to serial converter for AWS connection replaced, system port settings reset and tested. Data being received in Darwin.

22. Replace light switched at front gate (Lights in covered area)
    19May03
    Light switches replaced and tested.
    Used the opportunity to enforce lockout procedures

23. Ventilator fan replacement
    21May03
    Fan on global PSP replaced. Started 2330 – completed 2345z on
    20May03
    Fans on shaded PIR's changed. Started 0200z – completed 0300z on
    21May03
    22May03
    Refurbished 3 ventilators for site spares
    Sending 2 ventilators to Darwin for overhaul – broken leveling screws and paint peeling of the ventilators

24. NIES site Kipp & Zonen tracker
    22May03
    There were multiple power failures going from approx 1130z last nite until 0300z this morning. The tracker was not tracking at sunrise when instruments checked.
    The instrument had gone to the home position and was locked in position by the limit switches. The drive assembly was manually turned to move it off the limit switches and the tracker started tracking normally.

Unit was restored to service 2130z 21May03.
[Following info added per Rex's email on 23May03: The UPS shutdown at approximately 1245am. I can only guess that because the tracker was in the "home" position (as it does at sundown) - when the power failed the tracker did the normal power on init and as it was close to the limit positions (near the home position) it may have started to move and hit one of the limit switches - hence locking it out."]

25. Check fan in AWS satphone antenna
    24May03
    Fan in antenna checked and replaced as it had stopped running

26. Check and show observers how to use replacement A/C filter frames
    27May03
    Frames fitted and tested
    Observers shown how to use the frames with the replaceable filter material

27. Check blower fan in RBL launch plunger area
    27May03
    Check out blower fan – intermittently starting and making rattling noises
    Franklin worked under supervision to lockout and tag the mains circuit breaker, undo the power plug from the wall socket and then replace the blower. (As this had a standard power plug that could be pulled from the wall it was an ideal way to train him on the procedures). He then replaced the blower, reversed the lockout procedures and tested the new blower – successful job.

    A replacement blower is required as we used the spare unit.

28. Rust prevention on mains pad mount transformer
    28May03
    Cleaned off surface rust and painted with zinc paint then yellow paint.
    The enclosures holding the incoming circuit breaker and the meter have probably got a year to go before will need replacing.

29. Rust prevention on diesel tanks
    28May03
    Cleaned off surface rust with wire brush on both tanks and sprayed with zinc paint

Supplies needed at site or for future Site Visit:

1. MMCR Antenna and Feedhorn assembly – Troy is shipping the one at Darwin to Nauru.

2. AERI Fine particle filter replaced – no further spares on site: ALFCO div of AirMaze corp – 805 684 7651 model – 9FNEM-E-060603-0 part number 9703013
3. Teflon window for MWR.
4. MWR heater blower assembly.
5. H2 Generator RBL Blower Motor (no spares left on site).
6. Fire Extinguishers: 2 replacement units for Y and Z van and new mounting brackets for Z van. 1 replacement unit and bracket for the AERI, to be mounted in the AERI van.
7. MMCR Mux Fan: Papst brand, model 412, 12 volt (no spares left on site).
8. Data System: Software for APC UPS needs to be obtained and loaded onto computers to enable soft shutdown of UPS.
9. Mains pad mount transformer: The enclosures holding the incoming circuit breaker and the meter have probably got a year to go before will need replacing.
10. Replacement parts for WSI filter.
11. Need 2 ventilators for next Cal Trip.
12. Need additional leads for next Cal Trip.

Equipment to be shipped back to US:

1. DS Raid chassis, WD33239 – sent from Nauru on 22May03, DHL 3450385400
2. MWR unserviceable spare heater assembly – sent from Nauru on 22May03, DHL 3450385400
3. AERI CompuMotor Drive &Temp Monitor Cable – sent from Nauru on 22May03, DHL 3450385400
4. Nauru MMCR Antenna.

Equipment to be shipped back to Darwin:

1. 2 Spare ventilator bodies to Darwin for powder coating and replacement of leveling screws.